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ABSTRACT

An action of an individual or a societal action that has an impact on other societies constitutes a "global issue." Global climate change, airborne toxins, ozone depletion, and solid waste management are a few of the global issues concerning the environment. This digest discusses methods by which students learn about global issues and acquire skills to deal with them. Topics discussed include: (1) the role of formal education in the acquisition of environmental knowledge; (2) the goal of environmental education to develop responsible environmental behavior in citizens; (3) the structuring of environmental education for global issues by either infusing them into the curriculum, inserting new courses into study, or creating a framework that allows learning to be related to and integrated within a student's life; (4) the use of creative problem-solving and decision-making approaches in dealing with global issues; and (5) the need to develop curriculum that addresses the identification of and response to environmental issues of global concern. Contains 10 references. (MDH)

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Global Issues and Environmental Education

Carmen E. Trisler

Global Issues

The action of an individual or society that has an impact on other societies constitutes a *global issue*. As citizens, we hear about global issues on a daily basis, but how are we to deal with these problems in our lifetime?

Global climate change, airborne toxins, ozone depletion, and solid waste management are but a few of the global issues that are of current concern for our environment. How do learners and educators know which global issues are important to their lives, and where do they acquire their knowledge and skills to deal with these environmental issues?

Acquiring Environmental Knowledge

In a longitudinal study of fifth and ninth graders in Ohio, school classes were found to be increasingly influential in the acquisition of knowledge about the environment. Although students ranked movies and television as the most influential sources of knowledge about specific environmental issues in 1979, by 1983 and 1987 those sources had been replaced by classes in school as being most influential (Fortner & Mayer, 1991).

High school environmental education courses are often the last formal exposure to environmental issues for non-college-bound students. These courses can be used as valuable opportunities for extending environmental knowledge on global issues and disseminating materials. Such courses can culminate environmental experiences and can clarify and structure knowledge and skills gained from earlier experiences (Singletary, 1992). But learning occurs only when there is meaning in outcomes. Environmental issues, especially global issues, can often appear nebulous and disconnected from a learner's life.

Environmental Education and Global Issues

Because of the multidisciplinary and interdisciplinary nature of environmental education, it is often difficult to define. Environmental education can mean concepts in ecology, outdoor education, environmental science or instruction about issues (Ramsey, Hungerford & Volk, 1992). A primary goal of environmental education, though, is the development of responsible environmental behavior in citizens, both as individuals and societal groups (Ramsey & Hungerford, 1989). The global ramifications of individual or collective action on the rest of the world have only recently become concerns for society. Historic views of air and water were that the abundance and vastness of these resources allowed for unlimited use and abuse. Today, additional chemical burdens on the environment and alterations of the natural systems have increased. This has been coupled with an increased understanding of the effects of human action on the environment, including long term effects.

Every human action has an impact on the environment, both immediately and globally. In a formal education setting, it would seem that incorporating environmental issues into the curriculum would be relatively easy; but experience would suggest otherwise.

Structuring Environmental Education for Global Issues

Environmental education programs have been designed for either *infusion* into existing curricula or the *insertion* of new courses into study. *Framing*, a third alternative can be especially effective in learning about global issues (Heimlich, 1992).

In the infusion approach, content and skills are integrated into existing courses so as to focus on that content without losing the integrity of the courses themselves (Ramsey, Hungerford & Volk, 1992). For example, an elementary mathematics class might calculate the amount of solid waste that 30 students produce in a year, or the issue of airborne toxins can be used when studying about prevailing winds in an earth science class. Infusion is most often seen in elementary and middle school levels, but less in high school where classes are departmentalized and topically related (Singletary, 1992).

Case studies have been used effectively in infusion efforts (Ramsey, Hungerford & Volk, 1992; Singletary, 1992). Case studies provide the educator with flexibility and control as the teacher becomes the curriculum designer. The class, directed by the teacher, analyzes a particular issue, developing focused information and skills. A class might choose the global issue of loss of biodiversity focusing their study on the changes in their own neighborhood which have caused a loss of species.

Insertion, the addition of specific courses in environmental education, tends to be used more at the high school level. A course in global issues or environmental issues which is developed on the *issues investigation skills* format is an example of insertion. While the case study is issue specific, the issue investigation skills format is broader and more generalized. This approach, with the teacher acting as a facilitator and advisor, is probably more effective at fostering responsible citizenship behavior than the issue case study (Ramsey, Hungerford & Volk, 1992).

Framing moves beyond the arbitrary boundaries of traditional disciplines by creating a framework which allows learning to be related and integrated within a student's life (Heimlich, 1992). Using this approach, educators and students can investigate, interpret, explore, manage, discover, and make decisions about global issues.

Hines, Hungerford, and Tomera (1987) analyze responsible environmental behavior by identifying four elements in environmental education: (a) knowledge of environmental issues; (b) knowledge of specific action strategies to apply to these issues; (c) the ability to take action on environmental issues; and (d) the ownership of certain affective qualities and personality attributes. These elements can be used as a framework for constructing learning about global issues that is related and integrated to a student's life.

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Whichever approach is used, the relationship of the individual action in regard to global issues must be central to the instruction if the desired outcome is that of responsible environmental behavior. When studying about global issues, the goal needs to be more than merely acquiring scientific knowledge. A relationship must be made between the individual action and responsibility to the global issue.

Decision-Making and Global Issues

One approach toward creating an opportunity for meaningful learning is through decision-making and problem-solving approaches with global issues. Infusion provides teachers with opportunities for drawing upon other disciplines in seeking solution for problems. There are many situations in which creative problem solving dealing with environmental issues can be used in learning settings (Disinger, 1990).

Before students can address global environmental issues, they must be knowledgeable about problem identification, interrelationships and alternatives. Monroe and Kaplan (1988) suggest these elements are important in problem solving:

- Knowledge of the environment and of issues
- Familiarity with solutions to problems
- Knowledge of action strategies that help resolve issues
- Skill in action taking
- Locus of control and empowerment
- Attitudes and values
- Sense of responsibility and commitment
- Group process skills
- Communication skills
- Problem solving

Different issues require varying levels of decision-making, however most decision-making can be viewed as a process involving needs identification, option scanning, and selection of a course of action (Ewert, 1988). Several steps have been identified in the classic decision-making process:

1. Canvassing of alternative course of action and objectives
2. Weighing each option as to the potential benefits and costs
3. Searching for new sources of information
4. Assimilating new information
5. Re-examining the consequences of various actions with respect to any new information
6. Providing for implementation
7. Examining the results of the action (Janis & Mann, 1977).

Environmental education can provide opportunities for using these steps in decision making, especially to relate the meaning of individual action to global issues.

Curriculum Needs and Global Issues

During the 1980s, environmental educators used surveys to determine the needs for environmental education programs. Educators recommended that environmental endeavors focus not only on awareness, but also on attitudes, skill development and citizenship participation in environmental problem solving. A need was indicated by teachers for a new curricula on all academic levels to address the goals on environmental education. Knowledge and awareness of ecological issues were met to a greater extent as higher levels of learning included investigation of issues, evaluation of solutions, and citizenship action (Volk, Hungerford & Tomera, 1984).

Environmental issues of global concern are known to students and to educators. If asked to identify issues, most would be able to identify several: global climate change, ozone depletion, acid rain, deforestation, ocean dumping, and so on. The challenge of environmental education is to make these global issues meaningful to learners by focusing on individual contributions to the problems, and then, using problem-solving, decision-making strategies to develop, refine and redirect the thinking and the learning.

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